Engineering Analysis

Shelco Foundries, Inc.
Jacksonville, Alabama
(301-0034)

Introduction

On January 14, 2015, the Department received Air Permit applications from Shelco Foundries, Inc., located in Jacksonville, AL. Shelco proposes to install a new Wheelabrator Super Tumble Shotblast and add it to the Dustex Baghouse. Shelco has removed the DTSB Super 14 Shotblast (X012) and returned the Air Permit back to the Department. The new shotblast Air Permit 301-0034-X015 will share the Dustex Baghouse with the Auxiliary Tumbler X008, and DSTB Super 14 Shotblast X014. Shelco Foundries Inc. is a synthetic minor source for Title V and minor source for PSD.

Emissions

The only emission of concern from this source would be particulate matter. The calculations for the new shotblast can be seen in the appendix of this document. The allowable particulate matter emissions based on the processed weight equation ($E = 3.59P^{0.62}$) for the Wheelabrator Super Tumble Shotblast were determined to be 3.18 lbs/hr (13.9 TPY). The estimated actual were calculated to be 0.255 lbs/hr (1.12 TPY). The particulate matter less than 2.5 microns ($PM_{2.5}$) emissions were assumed to be equivalent to the PM_{10} emissions. The Wheelabrator Shotblast is expected to only produce filterable $PM_{2.5}$ emissions and no condensable $PM_{2.5}$ emissions would be expected from this process.

Shelco's facility wide potential to emit for particulate matter is 97.68 TPY. With the addition of the new shotblast, the facility's potential to emit would be over 100 TPY major threshold for Title V. The emissions from the existing DSTB shotblast and tumblers (Air Permit Nos. 301-0034-X008 and X014) are currently limited to 5.5 lbs/hr (24.1 TPY). The facility has requested to keep the same limits to stay below the Title V threshold.

Unit	**Description**		**Particulate Matter lb/hr**	**TPY**
X005	Foundry Sand System w/BH		2.5*	10.51
X008 X014 **X015 (new)**	Auxillary Tumbler DSTB Super 14 Shotblast **Wheelabrator Shotblast**		5.5*	24.1
X009	2 EIF & Metal Innoculation w/BH	Ductile Treatment Two EIF's	4.0* 9.4*	17.52 41.17
X013	4 Grinders w/BH		1.0*	4.38
Total				**97.68**

* Denotes the Synthetic Minor Operating Permit (SMOP) emission limit.

There are no expected Green House Gas (GHG) emissions from this process.

NSPS/NESHAP

There are no applicable New Source Performance Standards (NSPS) for this unit. Because the facility is not a major source of HAPs, the facility is not subject to 40 CFR 63 Subpart EEEEE-

National Emission Standards for Hazardous Air Pollutants for Iron and Steel Industries. Shelco Foundries is an area source for 40 CFR Subpart ZZZZZ. Shelco was required to achieve compliance with Subpart ZZZZZ by January 2, 2009 for the pollution prevention management practices for metallic scrap 40 CFR 63.10885 (a) and January 4, 2010 for the pollution prevention management practices for mercury 40 CFR 63.10885 (b).

PSD/Title V

Shelco Foundries Inc. is a Synthetic Minor source. The addition of the new Wheelabrator Super Tumble Shotblast will not exceed any major criterion pollutant threshold, therefore, Shelco Foundries would not be subject to PSD or Title V review at this time.

Air Toxics/112(g)/Class I Areas

The facility is not expected to emit HAPs in significant quantities (greater than 10 TPY of any single HAP or 25 TPY of any combination of HAPs), and the facility is not subject to 40 CFR 63 Subpart EEEEE; therefore, a 112(g) case by case MACT review would not be necessary. The emissions of air toxics from these sources are expected to be insignificant; therefore, no air toxic review would be needed. The emissions from the facility are not expected to significantly impact the Sipsey Wilderness Area, the nearest Class 1 area, which is over 100 km from the facility.

Recommendation

After a 15 day comment period is held, I recommend that Shelco Foundries Inc. be issued Synthetic Minor Operating Permit No. 301-0034-X015 for the installation of the new Wheelabrator Super Tumble Shotblast. Shelco Foundries new shotblast is expected to meet the applicable state and federal air pollution control regulations.

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Paul J. Vaccaro
Industrial Minerals Section
Energy Branch
Air Division

1-21-2015
Date

APPENDIX A
Calculations

Appendix A

Wheelabrator Shotblast							
Capacity							
Castings	3000	lbs/hr					
Shot	1500	lbs					
Process Weight Equation							
$E = 3.59P^{0.62}$							
P = tons/hr shot + 0.05 * tons/hr of Castings	0.825	Tons/hr					
P =	0.825	Tons/hr					
E =	3.19	lbs/hr					
	13.96	TPY					
Potential Uncontrolled							
E.F. from AP-42 12.10-7							
E.F. =	17	lb/ton iron					
E =	25.5	lbs/hr					
	111.69	TPY					
Potential Controlled							
Baghouse 99% control efficiency							
E =	0.255	lbs/hr					
	1.116	TPY					

APPENDIX B
Suggested Provisos

SHELCO FOUNDRIES, INC.
JACKSONVILLE, ALABAMA
(PERMIT NO.: 302-0034-X015)
PROVISOS (Wheelabrator Shotblast)

1. This permit is issued on the basis of Rules and Regulations Existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.

2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.

3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants.

4. Each point of emission will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.

5. In case of shutdown of air pollution control equipment for scheduled maintenance for a period greater than **two (2) hours,** the intent to shut down shall be reported to the Air Division at least 24 hours prior to the planned shutdown, unless accompanied by the immediate shutdown of the emissions source.

6. In the event there is a breakdown of equipment in such a manner as to cause increased emission of air contaminants for a period greater than **two (2) hours,** the person responsible for such equipment shall notify the Air Division within an additional 24 hours and provide a statement giving all pertinent facts, including the duration of the breakdown. The Air Division shall be notified when the breakdown has been corrected.

7. This process including all air pollution control devices and capture systems for which this permit is issued shall be maintained and operated at all time in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.

8. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.

9. On completion of construction of the device for which this permit is issued, notification of the fact is to be given to the Chief of the Air Division. Authorization to operate the unit must be received from the Chief of the Air Division. Failure to notify the Chief of the Air Division of construction and/ or operation without authorization could result in revocation of this permit.

10. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.

11. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.

12. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.

13. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.

14. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

    Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

    (a) by the application of water at any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;

    (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;

    (c) by paving;

    (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

    Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

15. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

PERMIT NO.: 302-0034-X015

16. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

17. Particulate matter emissions from the New Wheelabrator Shotblast, the DSTB Super 14 Shotblast and Tumblers (SMOP Nos. 301-0034-X008 and X014) shall not exceed the lesser of a total of 5.5 lbs/hr as measured by EPA Reference Method 5 of 40 CFR 60.

16 January 2015
Date